

Article

Leverage and Firm Performance: New Evidence on the Moderating Role of Macroeconomic Conditions

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Abstract

This study investigates the relationship between financial leverage and firm performance and examines the moderating role of macroeconomic conditions among GCC-listed firms. While prior studies have primarily focused on the direct effect of leverage on firm performance, comparatively limited attention has been devoted to understanding how macroeconomic conditions shape the relationship between financial leverage and firm performance in emerging markets. Drawing on Trade-off Theory, Agency Theory, and Contingency Theory, this study argues that the effectiveness of financial leverage depends on prevailing macroeconomic conditions. Using a panel of GCC-listed firms over the period 2016–2023, the analysis employs a dynamic two-step System Generalized Method of Moments (System GMM) estimator to address endogeneity, unobserved firm heterogeneity, and the persistence of firm performance. Firm performance is measured using return on assets (ROA), return on equity (ROE), and Tobin's Q. The baseline results reveal that financial leverage has a significant negative effect on both accounting-based and market-based measures of firm performance, suggesting that the costs associated with excessive debt outweigh its financing benefits. The moderation analysis further reveals that macroeconomic conditions exert heterogeneous effects on this relationship. Specifically, GDP growth mitigates the adverse effect of financial leverage on ROA, whereas inflation mitigates the adverse effect on ROE but reinforces the adverse effect on Tobin's Q. These findings demonstrate that the impact of financial leverage on firm performance is contingent upon prevailing macroeconomic conditions and varies across accounting-based and market-based performance measures. The study contributes to the capital structure literature by integrating firm-level financing decisions with macroeconomic conditions and extending the explanatory power of Trade-off Theory, Agency Theory, and Contingency Theory by demonstrating how macroeconomic conditions shape the relationship between financial leverage and firm performance in the GCC context. The findings also have important implications for corporate managers, investors, and policymakers by emphasizing the need to incorporate macroeconomic conditions into capital structure decisions and adopt adaptive financing strategies to promote sustainable firm performance under changing macroeconomic conditions.



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1. Introduction

Financial leverage has been a major topic of interest amongst academics. Capital structure choices are a critical focus in corporate finance, as companies strive to optimize the balance between the costs and advantages of debt financing to improve performance.

Within this approach, leverage is crucial since it influences organizations' risk exposure, cost of capital, and financial flexibility. The use of debt can yield benefits such as tax shielding and enhanced management discipline; nevertheless, overdependence on leverage increases the risk of financial distress and may adversely affect corporate performance. The degree of leverage firms adopt in structuring their capital has significant implications for financial performance. According to traditional capital structure theories, the use of debt can enhance firm performance up to an optimal level by providing tax benefits and disciplining managerial behavior. However, excessive leverage increases financial risk and the likelihood of distress, particularly when firms are unable to meet debt obligations, potentially resulting in the transfer of control from shareholders to creditors (Akhtar et al., 2021). Accordingly, examining the impact of leverage on firm performance remains essential for understanding the balance between the benefits and risks of debt financing. As a result, the relationship between leverage and firm performance has been widely examined; however, empirical findings remain inconclusive and often vary across different economic environments. Accordingly, prior studies indicate that financial leverage may negatively affect firm performance, as higher debt levels increase financing costs and the financial burden on firms.

Recent empirical research has reinforced that the relationship between financial leverage and firm performance remains one of the most extensively debated and empirically contested issues in corporate finance. Although a substantial body of evidence suggests that excessive leverage adversely affects firm performance by increasing financing costs, financial distress risk, and constraints on financial flexibility, other studies contend that moderate levels of debt can enhance firm value through tax shields, improved managerial discipline, and the mitigation of agency conflicts. Furthermore, the growing body of contemporary literature indicates that the leverage–performance relationship is not universal but varies across firms and institutional settings. Specifically, recent studies highlight that firm-specific characteristics, institutional quality, and macroeconomic conditions play a pivotal role in determining whether leverage enhances or impairs firm performance. These findings suggest that the costs and benefits of debt financing are inherently context-dependent, underscoring the importance of examining this relationship within different economic and institutional environments, particularly in emerging markets such as the GCC (Akhtar et al., 2021; Khan & Qasem, 2024; Rahman et al., 2023).

Corporate finance theory is primarily concerned with how firms make financing decisions, particularly regarding capital structure and the optimal mix of debt and equity. The question of whether an optimal capital structure exists has long been a central and unresolved issue in the literature. Following the seminal work of Modigliani and Miller (1958, 1963), subsequent studies have moved beyond the idealized assumptions of perfect capital markets to incorporate more realistic conditions. This has led to the development of key theoretical frameworks, most notably the trade-off theory and the pecking order theory. The trade-off theory suggests that firms aim to achieve an optimal debt level by balancing the tax advantages of borrowing against the potential costs of financial distress. In contrast, the pecking order theory proposes that firms follow a financing hierarchy, preferring internal funds, then debt, and issuing equity only as a last resort when internal resources are insufficient.

A substantial body of empirical research has investigated the impact of leverage on corporate performance; nevertheless, the evidence remains inconclusive. Prior studies report conflicting findings, with some documenting a negative relationship between leverage and firm performance, which may be attributable to higher financing costs, thereby underscoring the ambiguity of this relationship (Harris & Raviv, 1991; Ramli et al., 2019; Zeitun & Tian, 2007). Conversely, it is argued that increased reliance on debt can impose managerial

discipline by reducing free cash flow and limiting discretionary behavior, thereby improving operational efficiency and firm performance. As a result, some studies document a positive relationship between financial leverage and firm performance (Detthamrong et al., 2017; Robb & Robinson, 2009; Ross, 1977). Moreover, existing literature suggests that the impact of financial leverage on firm performance is nonlinear, exhibiting both positive and negative effects. Several studies document an inverted U-shaped relationship, whereby moderate levels of leverage enhance performance, whereas excessive leverage reduces it (Ayaz et al., 2021; Dalci, 2018).

Contemporary empirical evidence from emerging and GCC economies has provided further insights into the relationship between financial leverage and firm performance, suggesting that its impact varies across different economic and firm-specific contexts. For example, Khan and Qasem (2024) find that short-term, long-term, and total debt have a significant negative effect on the financial performance of GCC-listed firms, indicating that the costs associated with excessive leverage—including higher financing costs, greater financial distress risk, and reduced financial flexibility—often outweigh its potential benefits. Similarly, Alabdulkarim et al. (2024) demonstrate that the effect of leverage varies with firm size, highlighting that the leverage–performance relationship is heterogeneous and may be nonlinear. Collectively, these findings suggest that the impact of financial leverage is influenced by firm-specific characteristics and the broader economic environment. Therefore, the relationship between leverage and firm performance cannot be generalized across different contexts, underscoring the need for further empirical evidence from GCC-listed firms and for examining how macroeconomic conditions, particularly GDP growth and inflation, shape this relationship.

From this perspective, higher levels of financial leverage may serve as an effective mechanism to reduce agency costs and enhance firm profitability by providing tax shields and incentivizing more efficient use of resources (Jensen, 1986; Modigliani & Miller, 1963; Williams, 1987). Despite this, the positive relationship persists only up to an optimal level; beyond that, additional increases in financial leverage adversely affect firm performance, as the marginal costs of debt—such as higher interest expenses, increased probability of financial distress, and reduced financial flexibility—exceed the associated tax and agency-related benefits. As leverage rises beyond this threshold, firms may face tighter financing constraints and limited capacity to respond to adverse economic conditions, ultimately leading to a decline in performance (Dalci, 2018). Although the empirical literature on capital structure has expanded considerably, important questions remain regarding the determinants of firms' financing decisions and the conditions under which financial leverage influences firm performance (Vo, 2017).

Indeed, the empirical literature examining the relationship between financial leverage and firm performance remains inconclusive, underscoring the need for further investigation. Although extensive evidence exists from developed markets, relatively little research has examined capital structure in emerging economies. In particular, the GCC region has received limited attention, with few comprehensive studies exploring the leverage–performance nexus in this context. The present study seeks to address these limitations by providing new evidence from GCC-listed firms. Much of the existing research focuses predominantly on firm-level characteristics, often neglecting the potential influence of macroeconomic conditions. As a result, important external factors may be omitted from the analysis. Evidence suggests that during economic downturns, firms face tighter credit constraints and reduced access to external financing, which ultimately leads to weaker performance, as measured by declining profitability (Kalantonis et al., 2021).

Although much empirical research has examined the relationship between financial leverage and company performance, the findings remain equivocal and fragmented, under-

scoring the need for further inquiry. A significant drawback of the current research is its primary emphasis on firm-specific attributes, which sometimes neglects the broader macroeconomic context in which enterprises operate. This exclusion is notable, as macroeconomic conditions—particularly uncertainty—can profoundly affect enterprises' financing choices and the effectiveness of leverage. In developing countries, characterized by heightened economic volatility and underdeveloped financial institutions, the interplay between leverage and macroeconomic conditions is expected to be significantly more critical. Nevertheless, reliable information about this connection is scarce, especially within the Gulf Cooperation Council (GCC), where companies are particularly vulnerable to external shocks and economic conditions.

This study examines the relationship between leverage and firm performance in the context of macroeconomic conditions, thereby addressing gaps in the literature. It specifically enhances the literature in three significant ways. Initially, it shifts the emphasis from a direct link to a conditional one, specifically analyzing how macroeconomic conditions affect the relationship between leverage and business performance. Secondly, it offers contemporary and substantial empirical information from GCC-listed companies throughout the period 2016–2023, an area that remains comparatively underexamined despite its economic importance. Third, by using sophisticated panel data methodologies, such as the Generalized Method of Moments (GMM), the research addresses potential endogeneity concerns and enhances the credibility of the results. To the best of the author's knowledge, limited research has examined this relationship in the GCC context. This study extends the existing literature on financial leverage by providing new empirical evidence on its role in shaping firm performance. Furthermore, by explicitly incorporating macroeconomic conditions—proxied by GDP growth and inflation—alongside firm-specific characteristics, the analysis examines whether the impact of leverage on performance varies systematically with macroeconomic conditions. These contributions collectively provide more refined knowledge of the influence of leverage on company performance across different economic contexts.

2. Review of Literature and Hypothesis Development

From a theoretical perspective, the capital structure controversy started when Modigliani and Miller (MM) suggested that capital structure was irrelevant to a firm's value. The authors argued that a firm's value is independent of its financing decision based on the assumptions of perfect capital markets, which include no taxes, no transaction costs, no bankruptcy costs, and no information asymmetries. This proposition states that the combination of debt and equity financing used by a company does not affect its market value or financial performance (Modigliani & Miller, 1958).

However, the Modigliani–Miller framework is based on very restrictive assumptions, which are rarely satisfied in practice. Real-world markets consider the financing choices and performance results of firms that are affected by taxes, costs of financial distress, agency conflicts, and information asymmetries (Jensen & Meckling, 1976; Modigliani & Miller, 1963; Myers, 1984). The shortcomings of the Modigliani–Miller irrelevance proposition stimulated the development of alternative capital structure theories that account for real-world market imperfections. In particular, the trade-off theory and the pecking order theory have emerged as the dominant frameworks for explaining firms' financing decisions and their implications for firm value and performance.

Among these theories, the trade-off theory by Kraus and Litzenberger (1973) posits that firms maximize their value by balancing the benefits of debt financing against its associated costs. According to the theory, debt provides advantages such as tax shields from the deductibility of interest payments. At the same time, excessive borrowing increases the

likelihood of financial distress, bankruptcy costs, and financing constraints. Consequently, firms are expected to pursue an optimal capital structure at which the marginal benefits of debt equal their marginal costs, thereby maximizing firm value and performance. Therefore, the trade-off theory suggests that leverage can enhance firm performance up to an optimal level, beyond which additional debt may adversely affect firm value and profitability. One of the key factors influencing the value of debt tax shields is a firm's profitability. More profitable firms are generally less susceptible to financial distress and bankruptcy, enabling them to benefit more effectively from the tax advantages associated with debt financing (Fama & French, 2002). Theorists ultimately supported those who maintained the significance of firm liquidity. Accordingly, the distinction between real and financial decisions is invalid when the business operates in imperfect capital markets, where internal and external financing are not perfect substitutes.

According to agency theory, proposed by Jensen and Meckling (1976), conflicts of interest may arise between managers and shareholders, as well as between shareholders and creditors, owing to the separation of ownership and control and information asymmetry. Financial leverage can mitigate agency conflicts between managers and shareholders by reducing free cash flow, increasing managerial accountability, and imposing fixed debt obligations that discipline managerial behavior. Therefore, debt financing may improve operational efficiency and enhance firm performance. However, excessive reliance on debt may intensify conflicts between shareholders and creditors, as creditors may impose restrictive debt covenants or firms may engage in risk-shifting and underinvestment, thereby increasing the agency costs of debt and the risk of financial distress. As a result, while leverage can enhance firm performance through its disciplinary role, excessive debt may adversely affect firm performance by increasing financial risk and shareholder–creditor agency conflicts.

According to contingency theory, organizational outcomes depend on the external environment rather than on a universally optimal strategy (Donaldson, 2001). Extending this perspective to capital structure decisions, the effect of financial leverage on firm performance is expected to vary according to prevailing macroeconomic conditions. During periods of strong economic growth and stable inflation, firms are generally better positioned to utilize debt financing effectively because of stronger cash flows, greater investment opportunities, and lower financial distress risk, thereby enhancing firm performance. As a result, adverse macroeconomic conditions, such as weak economic growth or elevated inflation, may increase borrowing costs, weaken firms' repayment capacity, and heighten the risk of financial distress, thereby reducing the positive impact of financial leverage on firm performance. Accordingly, contingency theory provides the theoretical foundation for examining GDP growth and inflation as moderating variables in the relationship between financial leverage and firm performance.

Corporate finance theory provides a unified framework for explaining how financial leverage influences firm performance. While the foundational theories emphasize different aspects of financing decisions, they collectively suggest that firms must balance the benefits of debt financing against its associated costs. Trade-off theory argues that firms seek an optimal level of debt by weighing tax advantages against the expected costs of financial distress. Agency theory complements this perspective by proposing that debt can improve managerial discipline and reduce agency costs, although excessive leverage may intensify shareholder–creditor conflicts and limit financial flexibility. Contingency theory further suggests that there is no one-size-fits-all financing strategy, as the effectiveness of financial leverage depends on the specific organizational and environmental context in which firms operate. Accordingly, macroeconomic conditions, particularly GDP growth and inflation, may influence whether leverage contributes positively or negatively to firm performance.

Rather than offering competing explanations, these theories collectively indicate that the impact of financial leverage on firm performance depends on the balance between the benefits and costs of debt financing. Importantly, this balance is influenced by the macroeconomic environment. Strong economic growth may improve firms' cash flows, investment opportunities, and debt-servicing capacity, thereby mitigating the adverse effects of leverage, whereas higher inflation may increase borrowing costs, financing constraints, and economic uncertainty, amplifying the costs associated with debt financing. Consequently, corporate finance theory provides a coherent conceptual foundation for examining both the direct effect of financial leverage on firm performance and the moderating roles of GDP growth and inflation, which underpin the hypotheses developed in this study.

Since this study aims to empirically investigate the relationship between leverage and firm performance, our literature review will focus on studies in this domain. Several previous empirical studies have examined the relationship between leverage and firm performance.

Given that this study investigates the relationship between financial leverage and firm performance, the literature review focuses on the theoretical and empirical evidence surrounding this relationship. An extensive body of empirical research has examined the relationship between financial leverage and firm performance across diverse institutional and economic settings. The findings from these studies are, at best, mixed. Indeed, a body of literature reveals a negative impact of leverage on performance (Ali et al., 2022; Chen, 2020; Das et al., 2022; Ghardallou, 2023; Alabdulkarim et al., 2024). Several empirical studies have documented a positive relationship between financial leverage and firm performance. For example, Abdullah and Tursoy (2019), Akinrinola et al. (2023), and T. Bui et al. (2023). More recent empirical evidence from emerging markets reveals that both firm-specific and external contextual factors influence the relationship between financial leverage and firm performance. In particular, larger firms are generally better positioned to benefit from debt financing because of their superior access to capital markets, lower borrowing costs, diversified revenue streams, and greater resilience to financial shocks (Alabdulkarim et al., 2024; Attia et al., 2023). These findings imply that the effectiveness of leverage is conditional rather than universal, providing a strong theoretical basis for investigating whether macroeconomic conditions—proxied by GDP growth and inflation—similarly moderate the leverage–performance relationship.

Compared with developed economies, GCC countries operate within a unique, distinctive institutional and macroeconomic environment characterized by bank-oriented financial systems, dependence on hydrocarbon revenues, and greater exposure to external economic shocks. These structural characteristics may influence firms' access to external financing and alter the costs and benefits of debt financing. Hence, the effect of financial leverage on firm performance is likely to vary under different macroeconomic conditions, providing a strong rationale for examining the moderating roles of GDP growth and inflation in the GCC context.

Despite the extensive body of literature examining the relationship between financial leverage and firm performance, empirical findings remain mixed and highly context-dependent. While some studies suggest that leverage enhances firm performance through tax shield benefits and managerial discipline, others argue that excessive debt increases financial distress costs, financing constraints, and bankruptcy risk, thereby reducing firm value and profitability. In addition, several studies have documented a nonlinear relationship, indicating that the benefits of leverage persist only up to an optimal threshold, beyond which additional debt adversely affects firm performance. These inconsistent findings suggest that the impact of financial leverage depends on the interaction between

firm-specific characteristics and the broader economic environment rather than following a universal pattern.

A growing body of empirical evidence has further advanced the understanding of capital structure by demonstrating that firm-specific characteristics, agency-related factors, and institutional conditions play fundamental roles in shaping financing decisions and their implications for firm performance (Kuč & Kaličanin, 2021; Stoiljković et al., 2022, 2024). Collectively, these studies demonstrate that capital structure decisions and their performance implications are shaped by both firm-specific and contextual factors. Nevertheless, comparatively little attention has been paid to examining how macroeconomic conditions, particularly GDP growth and inflation, moderate the relationship between financial leverage and both accounting- and market-based measures of firm performance, especially within the GCC context.

Recent studies increasingly recognize that the leverage–performance relationship is heterogeneous and influenced by firm characteristics such as firm size, ownership structure, corporate governance, and growth opportunities. These factors may affect firms' access to external financing, borrowing costs, and capacity to utilize debt efficiently, resulting in considerable variation in the impact of leverage across firms. Thus, the growing emphasis on contingent relationships suggests that the effectiveness of debt financing depends on the context in which firms operate rather than following a uniform pattern (Ahmed et al., 2023; Ibhagui & Olokoyo, 2018).

Nevertheless, existing research has predominantly focused on firm-level determinants, with comparatively little attention to the influence of the macroeconomic environment. Most empirical studies implicitly assume that the relationship between financial leverage and firm performance remains stable across economic conditions, overlooking the possibility that macroeconomic conditions may alter the costs and benefits of debt financing. In reality, changes in economic growth and inflation can significantly affect firms' borrowing costs, cash flow stability, investment opportunities, and overall financial risk, thereby influencing the effectiveness of leverage in generating superior performance.

Although an emerging body of literature demonstrates that macroeconomic conditions significantly influence firms' financing decisions and capital structure choices, existing studies have largely concentrated on the direct effect of macroeconomic conditions on leverage decisions (Chow et al., 2018; Vega-Gutiérrez et al., 2024). Comparatively little empirical evidence has examined whether macroeconomic conditions moderate the relationship between financial leverage and firm performance, particularly in emerging markets such as the GCC. This gap suggests that the interaction between firm-level financing decisions and the macroeconomic environment remains insufficiently understood and warrants further investigation. This gap is particularly evident in the context of the Gulf Cooperation Council (GCC), where economies are highly dependent on hydrocarbon revenues, exposed to global commodity price fluctuations, and vulnerable to external economic shocks. These structural characteristics create a unique economic environment in which the costs and benefits of debt financing may differ substantially from those observed in developed markets. In addition, beyond firm-specific characteristics, capital structure decisions are made within a broader macroeconomic environment that influences firms' access to finance, borrowing costs, and risk exposure. As a result, macroeconomic conditions may play a critical role in shaping corporate debt behavior and financing choices. Examining the influence of factors such as GDP and inflation can therefore enhance our understanding of how firms adjust their capital structures in response to changing economic conditions and how these decisions ultimately affect firm performance.

Accordingly, there remains a need for empirical studies that adopt a conditional framework to examine whether the relationship between financial leverage and firm performance

varies under different macroeconomic conditions. To address this gap, the present study incorporates GDP growth and inflation as proxies for macroeconomic conditions to examine whether they moderate the relationship between financial leverage and firm performance among GCC-listed firms. By integrating firm-level financing decisions with macroeconomic conditions, this study extends the capital structure literature beyond firm-specific determinants and provides new evidence on how macroeconomic conditions shape the effectiveness of debt financing in emerging markets.

Indeed, the contingent role of macroeconomic conditions in the relationship between leverage and firm performance has been scarcely investigated. We draw on two important variables—GDP and inflation—to determine the extent to which they provide new insights into the leverage–firm performance nexus. This enables us to determine how changes in the macroeconomic environment affect the effectiveness of debt financing and which macroeconomic factors might damage or enhance firm performance.

Grounded in trade-off, agency, and contingency theories, and supported by prior empirical evidence, this study develops two hypotheses to examine the relationship between leverage and firm performance, as well as the moderating role of macroeconomic conditions, in GCC-listed firms. Although prior studies report mixed evidence regarding the relationship between financial leverage and firm performance, the theoretical framework developed in this study suggests that the costs of excessive debt—including financial distress, agency conflicts, and reduced financial flexibility—are likely to outweigh its benefits in GCC-listed firms. Specifically, the hypotheses assess whether leverage influences firm performance and whether macroeconomic conditions, represented by GDP growth and inflation, moderate the relationship between leverage and firm performance. By integrating firm-specific financing decisions with the external macroeconomic environment, the proposed hypotheses provide a comprehensive framework for understanding how leverage affects firm performance under different economic conditions.

H1. *Leverage has a negative effect on firm performance in GCC-listed firms.*

H2a. *GDP growth moderates the relationship between leverage and firm performance in GCC-listed firms.*

H2b. *Inflation moderates the relationship between leverage and firm performance in GCC-listed firms.*

3. Data and Research Design

3.1. Data

This study employs data from non-financial firms listed on stock exchanges in the Gulf Cooperation Council (GCC) countries. Financial institutions are excluded because they operate under unique regulatory and capital adequacy requirements that significantly influence their financing decisions and capital structures, making them incomparable to non-financial firms. Consistent with prior capital structure studies, the exclusion of financial firms helps ensure the sample's homogeneity and comparability (Alabdulkarim et al., 2024; Anderson & Reeb, 2003; Maury, 2006; Fama & French, 1992).

The study covers six GCC countries: Saudi Arabia, United Arab Emirates, Kuwait, Oman, Bahrain, and Qatar. These countries were selected because they share similar economic structures, institutional environments, and stages of capital market development. Furthermore, GCC economies are highly integrated and heavily dependent on hydrocarbon revenues, making them particularly susceptible to fluctuations in economic growth, inflation, and external economic shocks. These characteristics provide an appropriate setting

for examining how macroeconomic conditions influence the relationship between financial leverage and firm performance.

Firm-level financial data were obtained from the Thomson Reuters Eikon (Refinitiv) database, complemented by information from companies' annual reports and the official websites of the respective stock exchanges. Macroeconomic variables, including GDP growth and inflation data, were collected from reliable international sources, primarily the International Monetary Fund's (IMF) International Financial Statistics (IFS) database and country-specific statistical authorities.

The sample period spans eight years, from 2016 to 2023. This period was selected because it captures significant economic fluctuations and structural changes across GCC economies, including periods of oil price volatility, economic diversification initiatives, post-pandemic recovery, and varying inflationary pressures. These developments provide a suitable environment for investigating the role of macroeconomic conditions in shaping the effectiveness of debt financing.

The initial sample consisted of 259 listed non-financial firms across GCC stock markets. To ensure the quality, consistency, and reliability of the empirical analysis, the sample was refined using predefined screening criteria. Firms with missing financial information or incomplete market data were excluded because they did not provide sufficient information to consistently construct the study variables or to reliably estimate the empirical models. Cross-listed firms were retained only once based on their primary listing exchange to eliminate duplicate observations and preserve the independence of the sample. Firms suspended from trading during the study period were also excluded because prolonged suspensions may lead to incomplete market information and unreliable market valuations, potentially biasing market-based performance measures. These screening procedures are consistent with established empirical practice and were undertaken to enhance the validity and comparability of the final dataset. After applying these criteria, the final sample comprised 136 non-financial listed firms, yielding 1088 firm-year observations over the period 2016–2023.

The selected sample and study period provide a comprehensive framework for examining the relationship between financial leverage and firm performance and for assessing whether macroeconomic conditions, proxied by GDP and inflation, moderate this relationship among GCC-listed firms.

3.2. Variables

This study investigates the effect of financial leverage on firm performance and assesses whether this relationship varies under different macroeconomic conditions. Financial leverage is the principal explanatory variable, while firm performance is measured using both accounting- and market-based indicators to capture different dimensions of corporate performance. Recognizing that the broader economic environment influences firms' financing decisions and performance outcomes, the analysis incorporates GDP growth and inflation as key macroeconomic variables. In addition, firm age, firm size, sales growth, and year-specific effects are included as control variables to account for heterogeneity across firms and time. Table 1 presents a comprehensive description of all variables used in the study, including their definitions and measurement methods.

Firm performance is the dependent variable in this study. In line with prior corporate finance research, it is measured using three widely recognized performance indicators—Return on Assets (ROA), Return on Equity (ROE), and Tobin's Q—which collectively capture both accounting-based and market-based dimensions of firm performance (Alabdulkarim et al., 2024; Bhagat & Bolton, 2008; Nam & Tuyen, 2024).

This study uses Return on Assets (ROA), Return on Equity (ROE), and Tobin's Q as the primary indicators of firm performance. The first proxy is Return on Assets (ROA), which measures the efficiency with which a firm utilizes its assets to generate earnings. ROA is widely employed in the corporate finance literature as an accounting-based measure of operational performance and managerial efficiency.

The second proxy is Return on Equity (ROE), which evaluates the firm's ability to generate returns for its shareholders. ROE reflects how effectively management utilizes shareholders' invested capital to create earnings and is commonly used to assess financial performance from the perspective of equity holders.

The third proxy is Tobin's Q, a market-based measure of firm performance. Tobin's Q captures investors' valuation of the firm and reflects market expectations regarding future growth opportunities and value creation. Unlike accounting-based measures, Tobin's Q incorporates market perceptions and therefore provides additional insight into a firm's overall performance (H. Bui & Krajcsák, 2024; Li et al., 2025). Together, these three measures provide a comprehensive assessment of firm performance by capturing both accounting- and market-based dimensions, thereby enhancing the robustness of the empirical analysis.

Financial leverage is the primary independent variable in this study. It reflects the extent to which firms rely on debt financing to fund their operations and investments and serves as a key indicator of capital structure decisions. Consistent with prior studies, financial leverage is measured as the ratio of total debt to total assets, with higher values indicating greater reliance on debt financing (Bhagat & Bolton, 2008; Junqi et al., 2024). In line with the objectives of this study, financial leverage is measured using the total debt ratio, as it provides a comprehensive measure of firms' overall financing decisions by capturing both short-term and long-term debt obligations. This measure is widely adopted in the capital structure literature and is particularly appropriate for examining the overall relationship between financial leverage and firm performance under varying macroeconomic conditions.

To account for the influence of macroeconomic conditions, this study incorporates GDP growth and inflation as moderating variables, in line with prior studies by Cheong et al. (2021) and Ramlan and Saad (2025). GDP growth and inflation are selected because they are among the most widely used macroeconomic indicators for capturing the overall economic conditions in which firms operate. GDP growth, measured by the annual percentage change in real Gross Domestic Product (GDP), reflects the level of economic activity and business cycle conditions that influence business expansion, investment opportunities, and corporate profitability. Inflation, measured by the annual percentage change in the Consumer Price Index (CPI), captures changes in the general price level that may affect firms' financing costs, purchasing power, production costs, and overall operating performance (Egbunike & Okerekeoti, 2018; Frank & Goyal, 2009; Ibrahimov et al., 2025). Collectively, these macroeconomic indicators provide a comprehensive representation of the economic environment and enable an assessment of whether fluctuations in macroeconomic conditions moderate the relationship between financial leverage and firm performance.

Table 1. Variable definitions.

Capital Structure:	
Financial leverage	The ratio of total debt to total assets.
Firm Performance:	
Return on equity (ROE)	The ratio of earnings before interest and taxes (EBIT) to shareholders' equity.
Return on assets (ROA)	The ratio of earnings before interest and taxes to total assets.
Tobin's Q	The ratio of the market value of equity plus the book value of total debt to the book value of total assets.
Macroeconomics:	
Inflation rate	Changes in the consumer price index.
Gross domestic product	The annual change in real GDP.
Control variables	
Firm age	The natural logarithm of the number of years since the firm's listing.
Firm size	The natural logarithm of total assets.
Sales Growth	$(Sales_t - Sales_{t-1})/Sales_{t-1}$
Year dummies	An eight-year dummy for each of the years from 2016 to 2023.

By authors.

3.3. Research Methodology

This study employs the two-step dynamic System Generalized Method of Moments (System GMM) estimator to examine the effect of financial leverage on firm performance and to investigate the moderating role of the macroeconomic environment, proxied by GDP growth and inflation, in this relationship. The empirical analysis is based on a balanced panel dataset comprising 136 non-financial firms listed across six GCC countries over the period 2016–2023. The adoption of the System GMM estimator is motivated by the dynamic nature of firm performance and the potential endogeneity associated with financial leverage. Firm performance is inherently persistent over time, whereas financing decisions may be determined simultaneously with firm performance, giving rise to reverse causality, omitted variable bias, measurement error, and unobserved firm-specific heterogeneity. Consequently, conventional panel estimation techniques, such as pooled ordinary least squares (OLS), fixed-effects, and random-effects models, may yield biased and inconsistent parameter estimates.

The two-step System GMM estimator is therefore employed to address these econometric concerns by incorporating the lagged dependent variable and using lagged levels and first differences in the endogenous variables as internal instruments. This approach effectively mitigates simultaneity bias, controls for unobserved firm-specific effects, and produces consistent and efficient parameter estimates within a dynamic panel data framework. Furthermore, the two-step estimation procedure improves estimation efficiency by accounting for heteroskedasticity and autocorrelation while generating robust standard errors (Arellano & Bond, 1991; Blundell & Bond, 1998; Roodman, 2009).

The System GMM estimator is based on the dynamic panel data framework developed by Arellano and Bond (1991) and subsequently extended by Blundell and Bond (1998). This estimator is particularly suitable for panel datasets characterized by a relatively large cross-sectional dimension and a comparatively short time dimension, where dynamic persistence

and endogeneity are common empirical concerns. By exploiting internal instruments derived from lagged values of the variables, the estimator minimizes simultaneity bias and enhances the reliability and consistency of the estimated coefficients.

To examine whether macroeconomic conditions influence the effectiveness of debt financing, GDP growth and inflation are included as moderating variables via interaction terms with financial leverage. This specification enables the analysis to determine whether changes in macroeconomic conditions strengthen or weaken the relationship between financial leverage and firm performance after controlling for firm-specific characteristics. The validity of the System GMM estimates is evaluated using the Hansen test of over-identifying restrictions together with the tests for first- and second-order serial correlation (AR(1) and AR(2)). Collectively, this methodology provides a robust framework for estimating both the direct effect of financial leverage on firm performance and the moderating effects of GDP growth and inflation among GCC-listed firms.

3.4. Research Model

The following dynamic panel data models are estimated to test the hypotheses developed in this study. The empirical analysis is conducted in two stages. In the first stage, the direct effect of financial leverage on firm performance is examined while controlling for firm-specific characteristics that may influence corporate performance. This baseline specification isolates the effect of financial leverage on firm performance after accounting for firm heterogeneity. In the second stage, macroeconomic conditions, proxied by GDP growth and inflation, are incorporated via interaction terms with financial leverage to examine whether they moderate the relationship between financial leverage and firm performance. This extended specification assesses whether variations in economic growth and inflation strengthen or weaken the effect of financial leverage on firm performance. Accordingly, the empirical models are specified as follows:

$$FP_{it} = \alpha_0 + \alpha_1 FP_{it-1} + \beta_1 LEV_{it} + \beta_2 \ln Fsize_{it} + \beta_3 SG_{it} + \beta_4 \ln Fage_{it} + \text{Year Dummies} + \eta_i + \varepsilon_{it} \quad (1)$$

In the second stage, the baseline model is extended to incorporate macroeconomic conditions as moderating variables, examining whether the external economic environment influences the relationship between financial leverage and firm performance. Specifically, GDP growth and inflation are included as macroeconomic indicators, and interaction terms between financial leverage and each of these variables are introduced. This specification enables an assessment of whether changes in economic growth and inflation strengthen or weaken the effect of financial leverage on firm performance. The extended model is specified as follows:

$$FP_{it} = \alpha_0 + \alpha_1 FP_{it-1} + \beta_1 LEV_{it} + \beta_2 GDP_t + \beta_3 INF_t + \beta_4 (LEV_{it} \times GDP_t) + \beta_5 (LEV_{it} \times INF_t) + \beta_6 \ln Fsize_{it} + \beta_7 \ln SG_{it} + \beta_8 \ln Fage_{it} + \text{Year Dummies} + \eta_i + \varepsilon_{it} \quad (2)$$

4. Empirical Results and Discussion

4.1. Descriptive Statistics

Table 2 reports the descriptive statistics for the variables employed in this study, based on 1088 firm-year observations from 136 non-financial firms listed across six GCC countries during the period 2016–2023. The statistics provide an overview of the distribution and variability of the study variables and establish a foundation for the subsequent empirical analysis.

The mean Return on Assets (ROA) is 0.062, indicating that firms generated an average return of 6.2% on their total assets, while the mean Return on Equity (ROE) is 0.106, suggesting an average shareholder return of 10.6%. Although ROE exceeds ROA, its

substantially higher standard deviation (0.216) compared with ROA (0.076) indicates that shareholder returns are considerably more volatile. The mean Tobin's Q is 1.311, indicating that, on average, the sampled firms command market valuations above their book values. This suggests that investors generally perceive these firms as having favorable growth prospects and strong value-creation potential. The noticeable difference between the mean and median, together with the relatively high maximum value (13.587), indicates that a small number of firms enjoy exceptionally high market valuations, resulting in a positively skewed distribution.

The average financial leverage ratio is 0.259, indicating that approximately 25.9% of firms' total assets are financed through debt. The wide range of leverage values (0.0001–0.7202) reflects substantial differences in capital structure decisions across firms. Regarding the macroeconomic variables, the average GDP growth and inflation rates are 1.592% and 1.606%, respectively. Their relatively wide ranges indicate that firms operated under varying macroeconomic conditions, including periods of economic expansion and contraction as well as fluctuations in inflationary pressures throughout the sample period.

Among the control variables, the average firm size is 14.309, while sales growth averages 12.6%, although its relatively high standard deviation indicates considerable variation in firms' growth opportunities. The mean firm age is 3.064, suggesting that the sample primarily comprises mature listed firms with established operating histories.

Compared with the broader MENA sample reported by Attia et al. (2023), the sampled GCC firms exhibit higher average ROA, ROE, Tobin's Q, and financial leverage. These findings suggest that GCC-listed firms, on average, demonstrate stronger accounting- and market-based performance while maintaining a greater reliance on debt financing than firms in the broader MENA region. This may reflect the more developed capital markets, stronger institutional frameworks, and higher levels of economic development that characterize GCC economies. Overall, the descriptive statistics reveal substantial heterogeneity in firm performance, market valuation, capital structure, and macroeconomic conditions.

Table 2. Descriptive statistics of the study variables.

Variable	N	Mean	Median	Standard Deviation	Maximum	Minimum
ROA	1088	0.0620	0.0528	0.0758	0.5150	−0.4229
ROE	1088	0.1064	0.0929	0.2164	1.1627	−4.9175
Tobin's Q	1088	1.3113	0.9840	1.0606	13.5870	−0.0740
Leverage	1088	0.2585	0.2440	0.1702	0.7202	0.0001
GDP	1088	1.5924	1.3139	3.2779	7.8504	−5.2740
Inflation	1088	1.6061	2.3045	1.9570	4.9953	−2.5403
Firm Size	1088	14.3087	14.0383	1.4301	18.7100	9.2983
Sales Growth	1088	0.1260	0.0351	1.1438	35.1205	−0.9804
Firm Age	1088	3.0641	3.0445	0.6115	4.1897	0.0000

Note: This table presents a summary of the descriptive statistics for the key variables in the research in their original form.

4.2. Correlation Analysis

Table 3 presents the correlation matrix for all study variables. The three firm performance measures, ROA, ROE, and Tobin's Q, are positively and significantly correlated, indicating consistency between the accounting-based and market-based measures of firm performance. Financial leverage is negatively correlated with all three performance measures, providing preliminary evidence that higher debt levels are associated with lower firm performance. GDP growth exhibits a positive correlation with firm performance, whereas inflation shows relatively weak correlations. None of the explanatory variables are highly correlated; the highest pairwise correlation is 0.338, well below the commonly

accepted threshold. Therefore, multicollinearity is unlikely to be a concern. Nevertheless, the Variance Inflation Factor (VIF) analysis is conducted to further confirm the absence of multicollinearity before estimating the System GMM models.

Table 3. Correlation matrix.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) ROA	1.000								
(2) ROE	0.485 ***	1.000							
(3) Tobin's Q	0.455 ***	0.337 ***	1.000						
(4) Leverage	−0.266 ***	−0.105 ***	−0.072 **	1.000					
(5) GDP	0.063 **	0.100 ***	0.097 ***	−0.056 *	1.000				
(6) Inflation	0.006	0.029	0.053 *	−0.006	0.338 ***	1.000			
(7) Firm Size	−0.070 **	0.004	−0.176 ***	0.113 ***	0.029	0.007	1.000		
(8) Sales Growth	−0.007	0.002	0.064 **	−0.013	0.105 ***	0.038	0.007	1.000	
(9) Firm Age	−0.032	−0.033	−0.055 *	−0.137 ***	−0.001	0.107 ***	0.060 **	0.007	1.000

Note: This table presents the correlation matrix. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.3. Effect of Leverage on Firm Performance

The empirical findings are interpreted in light of Trade-off Theory, Agency Theory, and Contingency Theory to provide a comprehensive explanation of the relationship between financial leverage, macroeconomic conditions, and firm performance.

Table 4 reports the results of the two-step dynamic System Generalized Method of Moments (System GMM) estimation examining the impact of financial leverage on firm performance among GCC-listed firms, using Return on Assets (ROA), Return on Equity (ROE), and Tobin's Q as alternative accounting-based and market-based performance measures. Across all three specifications, the coefficients of the lagged dependent variables are positive and highly significant (ROA: $\beta = 0.683$, $p < 0.01$; ROE: $\beta = 0.664$, $p < 0.01$; Tobin's Q: $\beta = 1.007$, $p < 0.01$), providing strong evidence of persistence in firm performance over time. This finding indicates that firms' current financial performance and market valuation are significantly influenced by their historical performance, highlighting the dynamic nature of corporate performance and confirming the appropriateness of employing the dynamic System GMM estimator.

The results further demonstrate that financial leverage exerts a consistently negative and statistically significant effect across all three firm performance measures. Specifically, leverage is negatively associated with ROA ($\beta = -0.075$, $p < 0.10$), ROE ($\beta = -0.057$, $p < 0.05$), and Tobin's Q ($\beta = -1.030$, $p < 0.10$). These findings provide robust evidence that higher levels of debt financing are associated with lower accounting profitability and reduced market valuation among GCC-listed firms. The results suggest that, within the GCC context, the costs associated with debt financing—including higher interest obligations, financial distress costs, and increased financial risk—outweigh the potential benefits of leverage. Therefore, H1 is supported. These findings are consistent with recent findings of (Ahmed et al., 2023; Alabdulkarim et al., 2024; Danso et al., 2021). Consequently, the findings strongly support trade-off theory, which holds that firm performance deteriorates when leverage exceeds its optimal level and the marginal costs of debt exceed their associated benefits. The results are also consistent with Agency Theory, which proposes that although debt can serve as a governance mechanism by disciplining managers, excessive leverage may intensify agency conflicts between shareholders and creditors, constrain investment decisions, and ultimately reduce firm performance.

Among the control variables, sales growth exhibits a positive and statistically significant effect on both ROA and ROE, indicating that firms with stronger sales growth tend to achieve higher accounting profitability. This finding is consistent with the view that expanding business activity improves firms' operating performance and profitability.

However, sales growth is negatively and significantly associated with Tobin's Q, indicating that higher sales growth does not necessarily translate into higher market valuation. This suggests that although sales expansion contributes to stronger accounting performance, investors may place greater emphasis on the sustainability and quality of future growth when valuing firms. From an agency-theory perspective, the negative association between sales growth and market valuation may reflect managerial overinvestment and empire-building. Managers may pursue aggressive expansion strategies that maximize firm size and sales growth rather than shareholder value, resulting in investments with suboptimal returns. Such behavior can increase agency costs, reduce investment efficiency, and weaken expected future cash flows. Consequently, investors may interpret rapid sales growth as a signal of inefficient resource allocation rather than sustainable value creation, leading them to discount the firm's market valuation despite continued revenue growth.

In contrast, firm size and firm age do not exhibit statistically significant effects across any of the three models, suggesting that these firm characteristics do not systematically explain variations in firm performance after controlling for financial leverage and other firm-specific factors.

The post-estimation diagnostic tests confirm the validity and robustness of the estimated models. The Hansen test fails to reject the null hypothesis of instrument validity across all specifications, indicating that the selected instruments are appropriate. Furthermore, the significant AR(1) statistics and insignificant AR(2) statistics satisfy the Arellano–Bond specification tests, confirming the absence of second-order serial correlation in the differenced residuals. Collectively, these diagnostic results provide strong support for the reliability and consistency of the System GMM estimates, reinforcing the robustness of the reported empirical findings.

Table 4. Effect of leverage on firm performance: GMM Results.

	ROA	ROE	Tobin Q
L.ROA/ROE/Tobin Q	0.683 *** (0.040)	0.664 *** (0.075)	1.007 *** (0.231)
LEV	−0.075 * (0.038)	−0.057 ** (0.028)	−1.030 * (0.594)
lnFAGE	0.004 (0.005)	−0.012 (0.037)	0.022 (0.380)
lnFSIZE	0.003 (0.006)	0.007 (0.031)	−0.165 (0.128)
lnSG	0.002 ** (0.000)	0.003 * (0.001)	−0.020 ** (0.008)
Constant	0.058 (0.037)	0.048 (0.078)	−0.379 (0.999)
Year dummies	Yes	Yes	Yes
No. of Observations	1088	1088	1088
No. of Firms	136	136	136
Hansen Prob > Chi Sq.	0.252	0.115	0.659
AR (1): <i>p</i> -value	0.000	0.000	0.000
AR (2): <i>p</i> -value	0.877	0.529	0.710

Note: This table reports empirical results from estimating Equation (1). Figures in the parentheses are standard errors. Asterisks indicate significance at *, $p < 0.1$; **, $p < 0.05$; ***, $p < 0.01$.

4.4. The Moderating Effect of Macroeconomic Conditions Between Leverage and Firm Performance

Table 5 presents the findings on the moderating effect of macroeconomic conditions on the relationship between leverage and firm performance. To examine whether the effectiveness of leverage depends on the external economic environment, interaction terms

between leverage and two macroeconomic indicators, namely economic growth (GDP) and inflation, are introduced into the dynamic System GMM model.

The results provide evidence that macroeconomic conditions selectively moderate the leverage–performance relationship, although the strength of the moderating effect differs across macroeconomic indicators and firm performance measures. The interaction between leverage and GDP is positive and marginally significant for return on assets (ROA) ($\beta = 0.010$, $p < 0.10$), suggesting that stronger economic growth enhances the effectiveness of leverage in improving firms' operating performance. This finding provides limited support for contingency theory (Donaldson, 2001), which argues that the effectiveness of organizational and financial decisions depends on the external environment. During periods of stronger economic growth, firms generally experience greater investment opportunities, improved cash flows, and more favorable financing conditions, enabling them to use debt more efficiently and generate higher returns on leveraged investments. As a result, economic expansion appears to strengthen the positive contribution of leverage to operating performance.

In contrast, inflation exhibits a stronger and more consistent moderating role. The interaction between leverage and inflation is positive and statistically significant for return on equity (ROE) ($\beta = 0.027$, $p < 0.05$), indicating that higher inflation attenuates the negative effect of leverage on shareholder returns. This result is consistent with trade-off theory, which suggests that firms balance the benefits of debt against its associated costs when determining their optimal capital structure (Kraus & Litzenberger, 1973). Under moderate inflationary conditions, the real value of outstanding debt obligations may decline while firms continue to benefit from the tax advantages associated with debt financing. Consequently, the reduction in the real debt burden may partially mitigate the adverse effect of leverage on shareholder returns, if debt remains within sustainable levels and financing costs do not increase disproportionately.

However, the moderating effect of inflation differs when firm performance is measured by Tobin's Q. The interaction between leverage and inflation is negative and statistically significant ($\beta = -0.237$, $p < 0.05$), indicating that inflation amplifies the negative effect of leverage on market valuation. Although moderate inflation may improve accounting-based profitability, capital markets appear to respond less favorably to highly leveraged firms during inflationary periods because inflation increases uncertainty regarding future earnings, financing costs, and investment risks. Therefore, investors may discount the market value of highly leveraged firms despite improvements in accounting performance. This finding is consistent with agency theory (Jensen & Meckling, 1976), which argues that higher leverage under uncertain macroeconomic conditions may intensify conflicts between shareholders and creditors, increase financial distress concerns, and reduce investor confidence. As inflation increases, creditors become more cautious, and investors may perceive greater refinancing risk, thereby further reducing the market valuation of highly leveraged firms.

Overall, the findings demonstrate that macroeconomic conditions play a critical role in shaping the effectiveness of leverage in influencing firm performance, with inflation exhibiting a more pronounced moderating effect than GDP growth across the performance measures examined. H2a is partially supported because GDP growth significantly moderates the relationship between leverage and firm performance only when performance is measured by ROA. Likewise, H2b is partially supported because inflation significantly moderates the leverage–performance relationship for ROE and Tobin's Q, but not for ROA. These findings indicate that the moderating effects of macroeconomic conditions are not uniform across alternative measures of firm performance, suggesting that the influence of GDP growth and inflation depends on the performance dimension evaluated. Collectively, these findings are consistent with contingency theory, trade-off theory, and agency theory.

In line with contingency theory, the impact of leverage depends on the prevailing macroeconomic environment rather than being uniform across economic conditions. Trade-off theory suggests that the costs and benefits of debt financing vary with changes in the macroeconomic environment, influencing firms' ability to utilize leverage efficiently. Agency theory further explains why inflation may intensify agency conflicts, financial distress concerns, and refinancing risk, leading investors to assign lower valuations to highly leveraged firms. Overall, the results demonstrate that the effect of leverage cannot be understood in isolation but must be interpreted within the broader macroeconomic environment, which shapes both firms' financing outcomes and investors' assessments of firm value.

These findings extend the existing literature on capital structure and firm performance by demonstrating that macroeconomic factors not only directly influence firm outcomes but also shape the effectiveness of financing decisions. The contrasting moderating effects of inflation on ROE and Tobin's Q further reveal the divergence between accounting performance and market valuation. While inflation may mitigate the negative effect of leverage on ROE by reducing the real value of outstanding debt and improving short-term accounting returns, investors may not perceive these gains as sustainable. This divergence is particularly pronounced in the GCC, where firms operate in economies highly exposed to external inflationary pressures, oil price fluctuations, and evolving macroeconomic conditions (Fareed, 2023). Because GCC financial systems and corporate financing conditions are closely influenced by global monetary policy and oil market dynamics, periods of higher inflation are often accompanied by tighter credit conditions, increased refinancing costs, and heightened uncertainty regarding future economic activity.

Indeed, during inflationary periods, investors may anticipate higher refinancing costs, tighter financing conditions, and greater uncertainty surrounding future cash flows, increasing the perceived financial risk of highly leveraged firms. Hence, although inflation may temporarily improve accounting profitability, investors are more likely to discount the long-term value of highly leveraged firms, resulting in lower market valuations despite improvements in short-term financial performance. Overall, these findings demonstrate that the impact of leverage cannot be evaluated in isolation from the macroeconomic environment. Accordingly, managers should continuously adapt their financing strategies to prevailing economic conditions, while policymakers should promote macroeconomic stability through prudent fiscal and monetary policies to reduce financial uncertainty, facilitate more efficient financing decisions, and support sustainable long-term corporate performance.

Table 5. The moderating effect of macroeconomic conditions between leverage and firm performance: GMM Results.

	ROA	ROE	Tobin Q
L.ROA/ROE/Tobin Q	0.717 *** (0.193)	0.334 ** (0.153)	1.057 *** (0.113)
LEV × GDP	0.010 * (0.006)	0.003 (0.007)	0.017 (0.031)
LEV × INF	−0.001 (0.007)	0.027 ** (0.013)	−0.237 ** (0.104)
lnFSIZE	0.000 (0.014)	0.051 (0.063)	−0.068 (0.221)
lnFAGE	0.000 (0.006)	−0.018 (0.046)	0.155 *** (0.047)
lnSG	−0.001 (0.002)	−0.002 (0.002)	0.022 *** (0.008)

Table 5. Cont.

	ROA	ROE	Tobin Q
Constant	0.006 (0.043)	−0.056 (0.172)	−0.453 (0.495)
Year dummies	Yes	Yes	Yes
No. of Observations	1088	1088	1064
No. of Firms	136	136	133
Hansen Prob > Chi Sq.	0.670	0.606	0.343
AR (1): <i>p</i> -value	0.001	0.002	0.000
AR (2): <i>p</i> -value	0.843	0.351	0.699

Note: This table reports empirical results from estimating Equation (2). Figures in the parentheses are standard errors. Asterisks indicate significance at *, $p < 0.1$; **, $p < 0.05$; ***, $p < 0.01$.

5. Conclusions

This study examined the relationship between financial leverage and firm performance and investigated the moderating role of macroeconomic conditions among GCC-listed firms. Using a dynamic two-step System Generalized Method of Moments (System GMM) estimator, the analysis addressed potential endogeneity, unobserved firm heterogeneity, and the dynamic persistence of firm performance, providing robust evidence on how firms' financing decisions interact with prevailing macroeconomic conditions.

The baseline findings indicate that financial leverage has a significant negative effect on both accounting-based and market-based measures of firm performance, suggesting that excessive debt financing reduces corporate performance among GCC-listed firms. These findings imply that the costs associated with financial distress, higher borrowing costs, and the agency costs of debt outweigh the potential benefits of debt financing when firms exceed their optimal capital structure. More importantly, the results demonstrate that macroeconomic conditions shape the relationship between financial leverage and firm performance, although their influence differs across alternative performance measures. Specifically, GDP growth mitigates the adverse effect of financial leverage on return on assets (ROA), whereas inflation exhibits contrasting moderating effects across accounting-based and market-based performance measures. Inflation mitigates the adverse effect of financial leverage on return on equity (ROE), indicating that the negative relationship between financial leverage and accounting profitability becomes less pronounced under higher inflation. In contrast, inflation amplifies the adverse effect of financial leverage on Tobin's Q, suggesting that higher inflation may heighten market concerns about leveraged firms, leading to lower market valuations. This divergence highlights that improvements in accounting-based performance do not necessarily translate into stronger market performance, particularly in the GCC, where firms operate under evolving macroeconomic conditions.

Overall, the findings demonstrate that the effectiveness of financial leverage is contingent upon prevailing macroeconomic conditions and that accounting-based and market-based performance measures provide complementary yet distinct perspectives on firms' financing outcomes. By demonstrating how macroeconomic conditions shape the relationship between financial leverage and firm performance, this study extends the explanatory power of Trade-off Theory, Agency Theory, and Contingency Theory within the GCC context. The findings also provide valuable insights for corporate managers, investors, and policymakers by emphasizing the importance of incorporating macroeconomic conditions into capital structure decisions and adopting adaptive financing strategies to promote sustainable corporate performance in the GCC under changing macroeconomic conditions.

5.1. Theoretical Implications

The findings of this study make several important contributions to the capital structure literature by integrating firm-level financing decisions with macroeconomic conditions. First, the study extends trade-off theory by demonstrating that the costs and benefits of leverage are contingent on the prevailing macroeconomic environment rather than remaining constant across economic conditions. The negative relationship between leverage and firm performance suggests that firms may operate beyond their optimal capital structure, while the positive moderating effect of GDP growth indicates that favorable economic conditions enhance the effectiveness of debt financing.

Second, the findings enrich contingency theory by showing that the impact of leverage on firm performance depends on macroeconomic conditions. The significant moderating effects of GDP growth and inflation indicate that the effectiveness of leverage varies across different economic environments and performance measures.

Finally, the study advances agency theory by demonstrating that inflation affects the costs of debt financing and investors' perceptions of financial risk. While inflation strengthens the relationship between leverage and accounting-based performance, it weakens the relationship between leverage and market-based performance, highlighting the importance of considering both firm-level financing decisions and macroeconomic conditions when explaining firm performance.

5.2. Practical Implications

The findings of this study provide important implications for corporate managers, investors, and policymakers. For managers, the results suggest that capital structure decisions should be aligned with prevailing macroeconomic conditions rather than relying solely on firm-specific factors. While excessive leverage may reduce firm performance, favorable economic growth can enhance the effectiveness of debt financing, whereas inflation requires more cautious financing decisions due to its differing effects on accounting and market performance.

For investors, the findings highlight the importance of evaluating firms' leverage positions alongside macroeconomic conditions when assessing investment opportunities, as the impact of leverage varies across performance measures.

For policymakers, the results emphasize the importance of maintaining macroeconomic stability through sustainable economic growth and price stability. Such policies can improve the effectiveness of corporate financing decisions, strengthen firm performance, and enhance the resilience and competitiveness of GCC capital markets.

5.3. Limitations and Suggestions for Future Research

Despite its contributions, this study acknowledges several limitations that offer opportunities for further inquiry. First, the analysis is limited to GCC-listed firms, which may limit the generalisability of the findings to other institutional and economic settings. Second, macroeconomic conditions are represented only by GDP growth and inflation, whereas other macroeconomic factors may also influence the leverage–firm performance relationship.

Future research could extend this study by incorporating additional macroeconomic variables, such as interest rates, exchange rates, oil prices, or measures of inflation volatility and uncertainty, including Economic Policy Uncertainty. Future studies may also examine whether the moderating role of macroeconomic conditions varies across industries, ownership structures, firm life-cycle stages, or different institutional environments. Such extensions would provide a deeper understanding of how macroeconomic conditions shape capital structure decisions and firm performance.

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